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Appellant: Liang et al.
Appl No.: 09/164,517
Filed: September 30, 1998
Title: Image Compression

Art Unit: 2623
Examiner: Wu
Docket: TI-26414AA

APPELLANTS' BRIEF (in triplicate)

Assistant Commissioner
for Patents
Washington, DC 20231

MAILING CERTIFICATE	
I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, DC 20231 today.	
<i>Gracia Sansom</i>	<i>7-31-02</i>
Gracia Sansom	Date

Dear Sir:

The attached sheets contain the Rule 192(c) items of appellants' brief. The Commissioner is hereby authorized to charge the fee for filing a brief in support of the appeal plus an extension of time (separate petition enclosed) and any other fees to the deposit account of Texas Instruments Incorporated, account No. 20-0668; two additional copies of this first sheet of appellants' brief are enclosed.

Respectfully submitted,

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Rule 192(c)(1) Real party of interest

Texas Instruments Incorporated owns the application.

Rule 192(c)(2) Related appeals and interferences

There are no related dispositive appeals or interferences.

Rule 192(c)(3) Status of claims

Claims 1-7 are pending in the application with all claims finally rejected. This appeal involves all claims.

Rule 192(c)(4) Status of amendments

There is no amendment after final rejection.

Rule 192(c)(5) Summary of the invention

The invention provides an image compression methods with arithmetic coding of coefficient bitplanes and including differing contexts and coefficient types for differing portions of an image. Application page 12, last paragraph relates to claims 2-3, and application page 17, last paragraph to page 19, first paragraph relates to claims 6-7. Figs.2a-2c illustrate recursive wavelet transform and subband coefficient creation, and Figs.3a-3d show generation of the bitplanes from the wavelet transform coefficients.

Rule 192(c)(6) Issues

The issues presented on appeal are:

- (1) whether claim 1 is patentable over the Boliek patent in view of the Rabbani patent.
- (2) whether claims 2-3 are patentable over the Boliek patent in view of the Rabbani and Healey patents.
- (3) whether claims 4-5 are patentable over the Boliek patent in view of the Rabbani and Oda patents.

(4) whether claims 6-7 are patentable over the Boliek patent in view of the Rabbani and Rust patents.

Rule 192(c)(7) Grouping of the claims

The claims are treated as a single group.

Rule 192(c)(8) Argument

The rejections all rely on the Boliek patent (USP 6,141,446) which has a filing date of September 30, 1997. The present application has a priority date also of September 30, 1997; consequently, the Boliek patent is not a reference.

The Examiner asserted that the Boliek patent is a CIP of a parent application which issued as USP 5,966,465 and which would be a sufficient reference. However, the Examiner did not make any rejections using USP 5,966,465 in place of USP 6,141,446, and the pending rejections are insufficient.

Rule 192(c)(9) Appendix

1. A method of encoding an image, comprising the steps of:
 - (a) decomposing an image into bitplanes; and
 - (b) arithmetic encoding the bitplanes with a context model from the neighboring bits in a bitplane and previous bits at the location in previous bitplanes.
2. The method of claim 1, wherein the decomposition of the image into bitplanes includes:
 - (a) wavelet transform the image into a hierarchy of coefficients and the bitplanes are of transform coefficients; and
 - (b) the arithmetic coding includes a forgetting factor for the adaptive context statistics determination.
3. The method of claim 2, wherein the context model forgetting factor is 127.
4. The method of claim 1, wherein:
 - (a) said image is an I frame in a video sequence of frames including I and P frames in which P frames use motion compensation.
5. The method of claim 4, wherein:
 - (a) said video sequence also includes B frames which use bidirectional motion compensation.
6. The method of claim 1, wherein
 - (a) the decomposition of the image into bitplanes includes a partition of the image into simple and natural image portions; and
 - (b) the arithmetic coding uses different context models for the simple and natural image portions.

7. The method of claim 6, wherein:

(a) in the simple image portions the bitplanes are of the [sic] pixel values; and

(b) in the natural image portions the bitplanes are of wavelet transform coefficients.